

ABSTRACT OF THE DISCLOSURE

Optical Component Plastic Deformation Control Process

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A process for aligning an optical component by plastic deformation comprises finding a desired position of an optical axis of the optical component relative to a rest position of the optical axis of the optical component. Then, a deformation force is exerted, which is greater than a yield force of the optical component to thereby plastically deform the optical component in a direction of the desired position. The alignment process addresses mechanical compliance in the alignment system and/or optical system during the plastic deformation of optical components of the optical system. This mechanical compliance arises from the fact that there is typically flexing in the alignment system between the encoders and the part of the alignment system that actually engages the optical component. Moreover, it is typically desirable to perform the alignment on a partially completed optical system that has been installed into a hermetic package, typically prior to lid sealing. Thus, the hermetic package is typically clamped on a chuck. There is typically no way to detect compliance between the optical bench of the optical system and the package and possibly, an intervening thermo-electric cooler. The present invention is directed to a plastic deformation system that addresses this "mechanical slop" that is endemic to the underlying mechanical system.